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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
NGUYEN, JIMMY H	
ART UNIT	PAPER NUMBER
2629	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/938,303	NAGAOKA ET AL.	
	Examiner	Art Unit	
	Jimmy H. Nguyen	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 08/188,772.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Reissue Applications

1. This Office Action is made in response to applicant's amendment filed on 04/01/2004. Claims 1-72 are currently pending in the application. An action follows below:

Allowable Subject Matter

2. The indicated allowability of claims 1-72 in the Office Action dated 02/26/2003 are hereby withdrawn. Rejections follow.

Summary of the Invention

3. As best understood by the Examiner, an object of the present invention is to provide a gray scale controlling method for a plasma display device, which enhances the display quality of the plasma display device by establishing **a linear relation between the gray level and the corresponding brightness**. The present invention contains three embodiments, a first embodiment illustrated by Fig. 8, a second embodiment illustrated by Fig. 9, and a third embodiment illustrated by Fig. 10.

In the first embodiment (Fig. 8), the number of sustain emissions in each subframe is so **set** that the brightness of an arbitrary subframe is two times the brightness of the subframe next brighter than the former (see col. 12, lines 33-36), the number of sustain emissions in each subframe is set in an **anti-geometrical progression**, or the number of sustain emissions in each subframe is **not determined in accordance with any mathematical relationship**, (see col. 13, lines 16-20), and there is no need complex calculations (see col. 13, lines 3-4). Accordingly, the first embodiment **does not need to calculate** the number of sustain emissions in each subframe

and a number of sustain emissions is previously **set** in the memory for each subframe, so that the brightness of an arbitrary subframe is two times the brightness of the subframe next brighter than the former.

In the second (Fig. 9) and third (Fig. 10) embodiments, in order to make the relation between the gray level and the corresponding brightness a **linear** relation, the numbers of sustain emissions of each subframe in the case when the sum of the squares of errors in each gray level with respect to the ideal values becomes minimum is **calculated** on the basis of data of the brightness actually measured for the numbers of sustain emissions (see col. 13, lines 44-51). In the second embodiment (Fig. 9), the brightnesses of subframes are **15** cd/m^2 for SF1, **30** cd/m^2 for SF2, and **60** cd/m^2 for SF3. In the third embodiment (Fig. 10), the brightnesses of subframes are **20** cd/m^2 for SF1, **40** cd/m^2 for SF2, and **80** cd/m^2 for SF3.

Claim Rejections - 35 USC § 251

4. Claims 1-72 are rejected under 35 U.S.C. 251 as being based upon new matter added to the patent for which reissue is sought. The added material which is not supported by the prior patent is as follows:

As to claim 1, this claim recites a feature, "**calculating** numbers of sustain emissions of said plurality of subframes so as to make a ratio of brightnesses of said plurality of subframes substantially correspond with a ratio of the specific weight values of said plurality of subframes" presently recited in lines 6-10, which is **only readable in the second and third embodiments** and **not readable in the first embodiment** since the first embodiment does not teach "**calculating** the number of sustain emissions". Independent claim 1 further recites a feature, "a ratio of numbers of sustain emissions of said plurality of subframes does not equal the ratio of

the weight values of said plurality of subframes" presently recited in lines 10-12, which is **only readable in the first embodiment** and **not readable in the second and third embodiments** since the second or third embodiment does not teach a ratio relationship between a ratio of numbers of sustain emissions of said plurality of subframes and a ratio of the weight values of said plurality of subframes or a ratio of numbers of sustain emissions of said plurality of subframes being not equal the ratio of the weight values of said plurality of subframes. See the Summary of the Invention section above. In other words, the patent does not teach a combination of the first embodiment and the second or third embodiment, or a display device and a method including the above underlined features.

As to claim 2, since this claim depends upon claim 1, this claim is therefore rejected for at least the same reason set forth in claim 1 above.

As to claim 3, since claim 3 similarly recites the features of claim 1 as discussed in the rejection to claim 1 above, these claims are rejected for the same reason set forth in claim 1 above.

As to claims 4-17, since these claims depend upon claim 3, these claims are therefore rejected for at least the same reason set forth in claim 3 above.

As to claim 18, this claim recites features, (i) "numbers of sustain emissions of **each gray level** are **calculated** so as to make a ratio of brightnesses of **each** gray level substantially correspond with a ratio of the specific weight values of each gray level" presently recited in lines 8-12 and (ii) "a ratio of numbers of sustain emissions of **each** gray level does not equal the ratio of the specific weight values of each gray level" presently recited in lines 12-14. As best understood as well recognized by one of ordinary skilled in the display art, each gray scale can

have only a corresponding number of sustain pulses. Further, note that the first embodiment only teaches a ratio relationship between a ratio of numbers of sustain emissions of **said plurality of subframes** (but not "a ratio of numbers of sustain emissions of **each** gray level", as claimed) and a ratio of the weight values **of said plurality of subframes** (but not "a ratio of the specific weight values **of each gray level**", as claimed), thereby failing to teach the feature (ii) above. Further, the first embodiment does not teach the feature (i); see the Summary of the Invention section above. Further, the second/third embodiment only teaches numbers of sustain emissions of **the plurality of subframes** (but not numbers of sustain emissions of **each gray level**, as claimed) calculated so as to make a ratio of brightnesses of **the plurality of subframes** (but not a ratio of brightnesses of **each gray level**, as claimed) substantially correspond with a ratio of the specific weight values of **the plurality of subframes** (but not a ratio of the specific weight values of **each gray level**, as claimed). See the Summary of the Invention section above. In other words, the patent does not teach a display device and a method including the above underlined features.

As to claims 19-26, since these claims depend upon claim 18, these claims are therefore rejected for at least the same reason set forth in claim 18 above.

As to claim 27, since claim 27 similarly recites the features of claim 18 as discussed in the rejection to claim 18 above, this claim is rejected for the same reason set forth in claim 18 above.

As to claim 28, independent claim 28 recites features, "setting a number of sustain emissions, ... , different subframes bearing a **non-linear** relationship to the different, predetermined brightnesses of the respective, different subframes" presently recited in lines 6-10.

Note that the first embodiment (Fig. 8 and the corresponding description) expressly teaches "setting a number of sustain emissions for establishing a **linear** relationship between the gray level and the corresponding brightness" and the second (Fig. 9) and third (Fig. 10) embodiments also teach the same (see Abstract, last 5 lines; col. 13, lines 44-46). In other words, the patent does not teach a display device and a method including the above underlined features.

As to claims 29-36, since these claims depend upon claim 28, these claims are therefore rejected for at least the same reason set forth in claim 28 above.

As to claim 37, since this claim similarly recites the features of claim 28 as discussed in the rejection to claim 28 above, this claim is rejected at least for the same reason set forth in claim 28 above.

As to claims 38-45, since these claims depend upon claim 37, these claims are therefore rejected for at least the same reason set forth in claim 37 above.

As to claim 46, since this claim similarly recites the features of claim 1 as discussed in the rejection to claim 1 above, this claim is rejected at least for the same reason set forth in claim 1 above.

As to claim 47, since these claims depend upon claim 46, this claim is therefore rejected for at least the same reason set forth in claim 3 above.

As to claim 48, since this claim similarly recites the features of claim 1 as discussed in the rejection to claim 1 above, this claim is rejected at least for the same reason set forth in claim 1 above.

As to claims 49-62, since these claims depend upon claim 48, these claims are therefore rejected for at least the same reason set forth in claim 48 above.

As to claim 63, since independent claim 63 similarly recites the features of claim 18 as discussed in the rejection to claim 18 above, this claim is rejected at least for the same reason set forth in claim 18 above.

As to claims 64-71, since these claims depend upon claim 63, these claims are therefore rejected for at least the same reason set forth in claim 63 above.

As to claim 72, since claim 72 similarly recites the features of claim 63 as discussed in the rejection to claim 63 above, this claim is rejected at least for the same reason set forth in claim 63 above.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-72 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claim 1, this claim 1 recites a feature, "**calculating** numbers of sustain emissions of said plurality of subframes so as to make a ratio of brightnesses of said plurality of subframes substantially correspond with a ratio of the specific weight values of said plurality of subframes" presently recited in lines 6-10, which is **only readable in the second and third embodiments** and **not readable in the first embodiment** since the first embodiment does not teach

"**calculating** the number of sustain emissions". Independent claim 1 further recites a feature, "a ratio of numbers of sustain emissions of said plurality of subframes does not equal the ratio of the weight values of said plurality of subframes" presently recited in lines 10-12, which is **only readable in the first embodiment** and **not readable in the second and third embodiments** since the second or third embodiment does not teach a ratio relationship between a ratio of numbers of sustain emissions of said plurality of subframes and a ratio of the weight values of said plurality of subframes or a ratio of numbers of sustain emissions of said plurality of subframes being not equal the ratio of the weight values of said plurality of subframes. See the Summary of the Invention section above. Accordingly, the original disclosure does not teach a combination of the first embodiment and the second or third embodiment, or a display device and a method including the above underlined features.

As to claim 2, since this claim depends upon claim 3, this claim is therefore rejected for at least the same reason set forth in claim 1 above.

As to claim 3, since this claim similarly recites the features of claim 1 as discussed in the rejection to claim 1 above, this claim is rejected for the same reason set forth in claim 1 above.

As to claims 4-17, since these claims depend upon claim 3, these claims are therefore rejected for at least the same reason set forth in claim 3 above.

As to claim 18, this claim recites features, (i) "numbers of sustain emissions of **each gray level** are **calculated** so as to make a ratio of brightnesses of **each** gray level substantially correspond with a ratio of the specific weight values of each gray level" presently recited in lines 8-12 and (ii) "a ratio of numbers of sustain emissions of **each** gray level does not equal the ratio of the specific weight values of each gray level" presently recited in lines 12-14. As best

understood as well recognized by one of ordinary skilled in the display art, each gray scale can have only a corresponding number of sustain pulses. Further, note that the first embodiment only teaches a ratio relationship between a ratio of numbers of sustain emissions of **said plurality of subframes** (but not "a ratio of numbers of sustain emissions of **each** gray level", as claimed) and a ratio of the weight values **of said plurality of subframes** (but not "a ratio of the specific weight values **of each gray level**", as claimed), thereby failing to teach the feature (ii) above. Further, the first embodiment does not teach the feature (i); see the Summary of the Invention section above. Further, the second/third embodiment only teaches numbers of sustain emissions of **the plurality of subframes** (but not numbers of sustain emissions of **each gray level**, as claimed) calculated so as to make a ratio of brightnesses of **the plurality of subframes** (but not a ratio of brightnesses of **each gray level**, as claimed) substantially correspond with a ratio of the specific weight values of **the plurality of subframes** (but not a ratio of the specific weight values of **each gray level**, as claimed). See the Summary of the Invention section above. Accordingly, the original disclosure does not teach a display device and a method including the above underlined features.

As to claims 19-26, since these claims depend upon claim 18, these claims are therefore rejected for at least the same reason set forth in claim 18 above.

As to claim 27, since claim 27 similarly recites the features of claim 18 as discussed in the rejection to claim 18 above, this claim is rejected for the same reason set forth in claim 18 above.

As to claim 28, this claim recites features, "setting a number of sustain emissions, ... , different subframes bearing a **non-linear** relationship to the different, predetermined

brightnesses of the respective, different subframes" presently recited in lines 6-10. Note that the first embodiment (Fig. 8 and the corresponding description) expressly teaches "setting a number of sustain emissions for establishing a **linear** relationship between the gray level and the corresponding brightness" and the second (Fig. 9) and third (Fig. 10) embodiments also teach the same (see Abstract, last 5 lines; col. 13, lines 44-46). Accordingly, the original disclosure does not teach a display device and a method including the above underlined features.

As to claims 29-36, since these claims depend upon claim 28, these claims are therefore rejected for at least the same reason set forth in claim 28 above.

As to claim 37, since this claim similarly recites the features of claim 28 as discussed in the rejection to claim 28 above, this claim is rejected at least for the same reason set forth in claim 28 above.

As to claim 38-45, since these claims depend upon claim 37, these claims are therefore rejected for at least the same reason set forth in claim 37 above.

As to claim 46, since this claim similarly recites the features of claim 1 as discussed in the rejection to claim 1 above, this claim is rejected at least for the same reason set forth in claim 1 above.

As to claim 47, since this claim depends upon claim 46, this claim is therefore rejected for at least the same reason set forth in claim 46 above.

As to claim 48, since independent claim 48 similarly recites the features of claim 1 as discussed in the rejection to claim 1 above, this claim is rejected at least for the same reason set forth in claim 1 above.

As to claims 49-62, since these claims depend upon claim 48, these claims are therefore rejected for at least the same reason set forth in claim 48 above.

As to claim 63, since this claim similarly recites the features of claim 18 as discussed in the rejection to claim 18 above, this claim is rejected at least for the same reason set forth in claim 18 above.

As to claims 64-71, since these claims depend upon claim 63, these claims are therefore rejected for at least the same reason set forth in claim 63 above.

As to claim 72, since this claim similarly recites the features of claim 63 as discussed in the rejection to claim 63 above, this claim is rejected at least for the same reason set forth in claim 63 above.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-11, 18, 27, 46-56, 63, and 72 are rejected under 35 U.S.C. 102(a) as being anticipated by Applicants' Admitted Prior Art, hereinafter AAPA.

As to claims 1, 3, 18, 27, 46, 48, 63 and 72, AAPA discloses a plasma display panel (PDP) device and an associate method of controlling a gray scale of a PDP device, the PDP device comprising at least one pair of electrodes (see Figs. 1A-1B) for carrying out a discharge

operation, wherein the PDP is driven by separating address periods (see Figs. 4 and 6) in which display data are written in a common period for each display line in the screen so as to accumulate wall charges necessary for sustain discharge from sustain discharge periods (see Figs. 4 and 6) in which sustain discharge for light emission is repeated in a common period for each display line, one frame forming an image is constituted by a plurality of subframes (SF1-SF4, see Fig. 6) each having a specific weight value (SF1 has a weight value of 1, SF2 has a weight value of 2, SF2 has a weight value of 4, and SF3 has a weight value of 4; see col. 10, lines 34-45), numbers of sustain emissions of said plurality of subframes are calculated so as to make a ratio of brightnesses of said plurality of subframes substantially correspond with a ratio of the specific weight values of said plurality of subframes (see Fig. 7), wherein a ratio of numbers of sustain emissions of subframes in the order of **SF4:SF2:SF3:SF1** is **80:20:40:10** and a ratio of the specific weight values of said plurality of subframes in the order of **SF1:SF2:SF3:SF4** is **1:2:4:8**, i.e., the ratio of the numbers of sustain emissions of subframes does not equal to the ratio of the specific weight values of said plurality of subframes, and the image is displayed on said plasma display device by optionally combining said subframes each having the calculated number of the sustain emissions. Accordingly, all the limitations of these claims are read in AAPA.

As to claims 2 and 47, AAPA discloses the number of sustain emissions of said each subframe is calculated so that the brightness of 20 cd/m^2 obtained by a subframe (SF2) of said plurality of subframes having an arbitrary brightness is twice the brightness of 10 cd/m^2 obtained by a subframe (SF1) of said plurality of subframes having a brightness next to that of subframe (SF2) (see Fig. 7).

As to claims 4-11 and 49-56, AAPA discloses all limitations of these claims are shown in Figs. 1A-2B and 5A-5D.

9. Claims 1, 3-13, 18, 27, 46, 48-58, 63, and 72 are rejected under 35 U.S.C. 102(e) as being anticipated by Shinoda (US 5,541,618).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claims 1, 3, 18, 27, 46, 48, 63 and 72, Shinoda discloses a plasma display panel (PDP) device and an associate method of controlling a gray scale of a PDP device, the PDP device (see Figs. 6 and 8) comprising at least one pair of electrodes (X, Y and A, see Figs. 6 and 8) for carrying out a discharge operation, wherein the PDP is driven by separating address periods (see Figs. 4 and 5) in which display data are written in a common period for each display line in the screen so as to accumulate wall charges necessary for sustain discharge from sustain discharge periods (display periods; see Figs. 4 and 6) in which sustain discharge for light emission is repeated in a common period for each display line, one frame forming an image is constituted by a plurality of subframes (SF1-SF8; see col. 3, lines 25-28) each having a specific weight value (SF1 has a weight value of 1, SF2 has a weight value of 2, SF2 has a weight value of 4, and SF3 has a weight value of 4, and etc.; see col. 3, lines 35-39), numbers of sustain emissions of said plurality of subframes are calculated so as inherently to make a ratio of brightnesses of said plurality of subframes substantially correspond with a ratio of the specific weight values of said plurality of subframes, wherein a ratio of numbers of sustain emissions of

subframes in the order of **SF1:SF2:SF3:SF4:SF5:SF6:SF7:SF8** is **3:6:13:26:52:104:209:418** and a ratio of the specific weight values of said plurality of subframes in the order of **SF1:SF2:SF3:SF4:SF5:SF6:SF7:SF8** is **1:2:4:8:16:32:64:128** (see col. 3, lines 35-40), i.e., the ratio of the numbers of sustain emissions of subframes does not equal to the ratio of the specific weight values of said plurality of subframes, and the image is displayed on said plasma display device by optionally combining said subframes each having the calculated number of the sustain emissions. Accordingly, all the limitations of these claims are read in AAPA.

As to claims 4-13 and 49-58, Shinoda discloses all limitations of these claims are shown in Figs. 6 and 8-11 and the corresponding description.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is 571-272-7675. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN
February 8, 2007

Jimmy H. Nguyen
Primary Examiner
Technology Division: 2629